# Rocky Flats Citizens Advisory Board

## A Vision for the Cleanup of Rocky Flats

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### The Vision

As previously described, the Board considered various elements of its vision for the cleanup and closure of the Rocky Flats site during late 1998 and 1999. Since its inception in 1993, the Board had already developed recommendations and comments on many of the vision areas. The material presented below is an up-to-date representation of the Board's vision through recently- developed recommendations and statements, as well as through reaffirmation of those developed in the past.

Waste Management | Environmental Restoration | Decontamination and Decommissioning | Special Nuclear Materials | Site Reuse | Stewardship

### Waste Management

As originally stated in RFCAB Recommendation 95-14, the Board continues to oppose any radioactive waste disposal onsite. There is no consensus within the Board on whether or not it supports disposing of transuranic waste at the Waste Isolation Pilot Plant.

Although the Board did not reach agreement on management options for Rocky Flats low level waste, it did develop the following containment criteria to guide DOE in its low level waste management planning. These criteria can be applied regardless of the disposition location. RFCAB offers the following criteria for use by the Department of Energy and other appropriate groups to screen potential low level waste management options.

The Board believes that the words "storage" and "disposal" may not be sufficiently defined to characterize its desired waste management strategies. Our members have agreed that the word "containment" is a better choice to describe the type of management we feel is necessary for this type of material. RFCAB's definition of containment is: "control of low level waste so that it is isolated from humans and the environment."

Because of potential technical, political and societal changes that may impact the safe storage of these wastes at some point in the future, the Board does not believe that any current waste storage strategies can be viewed as permanent solutions. As such, low level waste containment systems shall be designed for replacement, refurbishment, or upgrade at intervals no longer than approximately 200 years. In addition, RFCAB urges DOE to continue to develop better and safer waste management technologies. Therefore, DOE (or its successors) must commit to periodically (i.e., every 5 years) assess whether it can improve either the treatment or the containment of the waste.

Low level waste must be contained in a manner that is:

**Isolated:** Low level waste will be isolated geographically from humans, and, through use of containment technologies, from the environment.

**Monitored:** Any breach of containment will be detected through an active program of monitoring in time to ensure that the low level waste remains isolated from the environment.

**Retrievable:** The low level waste containment system will be designed and operated so that the waste shall be managed and/or removed in the event of loss of isolation. If new technologies become available for waste treatment, their application should be considered based on an analysis by future decision-makers and stakeholders.

**Secure:**
1. The containment system will be sufficiently protected so that waste is not accessible to those wishing to cause harm.

2. The containment system will be sufficiently marked / identified so that future generations will not encounter or release contaminants inadvertently.

***Additional Considerations***

**Stewardship:**
1. Funding to ensure long-term effectiveness of the containment system shall be provided for throughout the life of the containment system.

2. Communities shall participate in decisions about and management of the containment system.

**Transportation:**
The Board believes that the risks involved in transportation must be considered as an inseparable

part of the overall analysis when considering options for waste containment systems.

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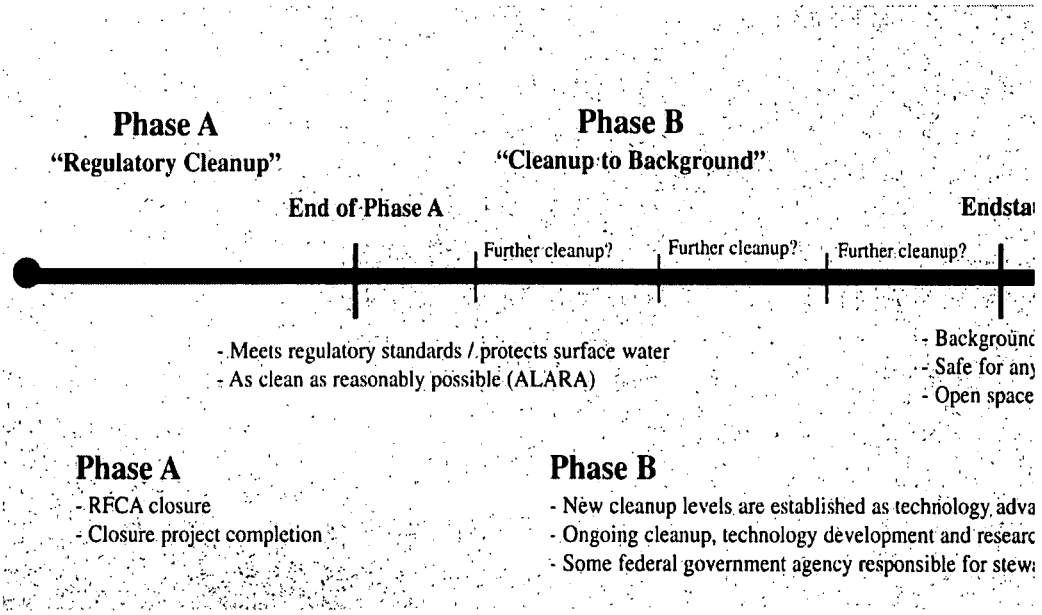
**Environmental Restoration**

The Board envisions a two-phased cleanup for Rocky Flats. As can be seen on the following diagram, the first phase would encompass the regulatory cleanup requirements combined with an ALARA analysis. The second phase would be marked by continued technology development and cleanup as it becomes feasible.




**At the End of the Regulatory Cleanup.** With public involvement, the RFCA parties should specify a cleanup level for the end of the regulatory cleanup phase that will be protective of both human health and surface water quality. Also, the site must perform an ALARA analysis to determine if further cleanup (i.e., levels approaching background) can be accomplished with a net benefit to the public and the environment. The Board defines background as the mean value of background measurements for the Colorado Front Range including naturally-occurring and fallout radiation.

**During the Cleanup to Background Phase.**

- The site steward, either the owner or those providing maintenance and monitoring onsite, will monitor and participate in the development of cleanup technologies. As new technologies are developed and demonstrated, the steward will perform an ALARA analysis to determine if the new cleanup technology, if deployed at the site, will result in a net benefit to the public and the environment.
- Some public entity will be formed or maintained to

provide input into technology use decisions and technology development goals.
- Some method will be chosen to ensure that funding is available for continued cleanup and technology development for application at RFETS.

**Caps:** Based on initial discussions about the potential use of caps in areas with residual contamination, a majority of the Board generally opposes the use of caps unless they are shown to be the only option available as a temporary measure to stop the spread of contamination. The Board will continue to discuss this issue as cleanup plans are further refined.

**General Cleanup Principles:** In 1996, the Board developed a set of cleanup principles that it continues to support. They are summarized as follows:

- **Health and Safety During Cleanup.** Safety management must be implemented and incorporated throughout cleanup and restoration activities. Retention of the trained workforce is a key element.
- **Waste Generation.** Cleanup should generate no more waste than is necessary to meet goals. However, waste minimization is not a justification for lesser amounts of cleanup.
- **No Further Degradation of the Environment.** Protecting natural resources is a priority in selecting cleanup alternatives — including ecological, geological, hydrological and air resources. Alternatives should be designed to prevent cross-contamination. Cleanup operations should not contaminate new areas or areas previously cleaned up.
- **Technology Utilization.** Match the inventory of cleanup needs to current technology to determine where it may be utilized. Identify areas where a new, emerging technology may be more cost effective or efficient.
- **Background Levels.** The long-term goal for cleanup is to achieve a level of residual contamination equal to or less than average background of radiation. Near-term standards need to be protective of human health and the environment. Periodically compare cleanup level goals to available technology to determine if the levels can be made more protective.
- **Risk Levels / Land Use.** Residual contamination and health risks should be compatible with future site use.
- **Budgetary Considerations.** Budgetary constraints should never affect the actual level of risk reduction.
- **Institutional Controls / Risk Elimination.** All areas designated "restricted use" should require an institutional control program, which provides for proper monitoring, testing and contingency plans in the event of a contaminant release. Management of "restricted use" areas should continue indefinitely, or until reclassified as "unrestricted use."

- **Timing of Decisions.** Rocky Flats cleanup activities must be completed before future land use planning is finalized.

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**Decontamination and Decommissioning**

In 1998, the Board recommended that all buildings at Rocky Flats be demolished or otherwise removed from the site. The Board has reaffirmed this position during its vision development process.

The Department of Energy and Kaiser-Hill developed a Deactivation and Decommissioning Strategy document to detail the prioritization and sequencing of D&D activities. The strategy states that prioritization will be based on the extent at which removal of each building will support risk reduction, accelerate the critical path, maximize the rate of mortgage reduction, and optimize the utilization of resources. The Board supports the strategy and sequencing of building D&D granted that necessary margins of safety are provided for worker, public, and environmental health and safety.

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**Special Nuclear Materials**

RFCAB continues to endorse its previous recommendations, which state that all special nuclear materials should be removed from the site. In 1995, the Board developed a set of core values and beliefs associated with plutonium at Rocky Flats.

- Plutonium must be in the safest storage possible.
- Plutonium must be removed at the earliest possible date.
- Actions involving plutonium must be designed to minimize handling to provide as low as reasonably achievable exposure to workers.
- Near-term actions must be in concert with disposition and be consistent with United States non-proliferation goals.

In 1996, the Board offered several considerations for disposition of excess plutonium:

> **General.** DOE should reduce the transport of fissile materials to a minimum, and reduce the current and future risk of nuclear proliferation. All activities must be subject to external, independent regulation. Any option selected by DOE must protect the health and safety of the public and workers, assure the integrity of the environment, and protect future generations.

**Processing and Storage.** Reduce or eliminate the need for future processing or handling, either at Rocky Flats or another site. Processing should put the plutonium in a form suitable for disposition. Immobilization of plutonium appears to be the best option for storage. DOE should consider vitrification and ceramification as the preferred options; small-scale pilot plants at various sites could help prove the technology. In all options, the goal should be to make the plutonium as proliferation-resistant as possible.

**Criteria for Selecting Disposition Site.** DOE should first ensure that there is broad support in the local community for any new facilities and that the new mission fits with whatever current mission exists at the chosen site. Then, DOE must pledge to mitigate intersite equity issues; ensure that adverse economic, social, environmental and worker health and safety impacts are minimized; and that new areas of contamination are also minimized.

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## Site Reuse

RFCAB continues to support preserving the entire Rocky Flats site as open space upon completion of cleanup (originally stated in RFCAB Recommendation 98-13). RFCAB supports DOE's plans to demolish all buildings onsite. It also believes that no new development or redevelopment should take place anywhere on the Rocky Flats site. The Board is concerned that the additional disturbance of soils could potentially release contamination into neighboring communities. Unique ecological assets could also be further disturbed due to new construction. The specific type of open space should be determined in the future when final site conditions are better defined.

RFCAB also recommends that the agencies initiate a comprehensive public involvement campaign to determine the public's vision of the Rocky Flats site end-state, before a specified type of open space is determined. Long-term stewardship, final cleanup levels, actinide migration, and the presence/absence of caps are several issues that require clarification and public participation.

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## Stewardship

Although RFCAB intended for stewardship to be a part of this Vision, conversations for an extended stewardship dialogue were just beginning as RFCAB developed this document. Therefore, the Board will refrain from making any specific stewardship recommendations until this process has been completed.

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This article was reprinted from RFCAB's *Vision for the Cleanup of Rocky Flats* which was published in October 1999.